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09/540,128	03/31/2000	Robbin Hughes	990253	3976

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Qualcomm Incorporated
Patents Department
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EXAMINER

TRAN, KHANH C

ART UNIT PAPER NUMBER

2631

DATE MAILED: 05/18/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/540,128

Applicant(s)

HUGHES ET AL.

Examiner

Khanh Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 13-17 and 19-21 is/are rejected.
- 7) ☒ Claim(s) 4, 11, 12 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The Amendment filed on 02/23/2004 has been entered. Claims 1-21 are pending in this Office action.

Response to Arguments

2. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe U.S. Patent 6,044,104.

Regarding claims 1 and 15, Watanabe invention is directed to cell search methods and mobile station apparatuses used for cellular systems. In column 3 line 39 through column 4 line 62, Watanabe discloses in figure 1 a mobile station apparatus including a search section, which comprises N search correlators 3, a control section 7, and a search control section 8.

The search control section 8 divides a search window into a number of search widths corresponding to the number of search correlators 3, and makes each of correlators 3 carry out correlative detection about these divided search widths simultaneously in a short integrating time. Since the outputs of these correlators 3 use a short integrating time to shorten a search time, they do not suppress interference or noise sufficiently nor achieve the accuracy to carry out cell judgment. In light of the foregoing disclose, it will be appreciated by one of ordinary skill in the art of wireless communications that the search is equivalent to a coarse search as claimed, using coarse search parameters including dividing the search window into a number of search widths, corresponding to the claimed dividing a PN space into segments, using short integration time, corresponding to the claimed selecting an integration time interval. Watanabe does not expressly teach selecting a number of non-coherent passes.

Nevertheless, one of ordinary skill in the art of wireless communications will appreciate that the integration time and cell search cycle would affect a number of non-coherent passes, which determines the number of times the correlators 3 step through the search window. Watanabe further discloses that search control section 8 selects multiple phases in high-low-order of the detected correlation values, makes each correlator carry out correlative detection for these selected phases in an integrating time longer than the first integration time. In light of the foregoing, results from the first search are applied to a second search, which

corresponds to the claimed using the results of the coarse search parameters for use in a second search.

Figure 3(a) illustrates the operations of search correlators 3 on a time scale for searching the strength of the pilot signal channels of 5 base station apparatuses A to E. Hence, it will be appreciated that the mobile station apparatus in figure 1 can receive pilot signals from a plurality of base stations, wherein each pilot signal is inherently transmitted at a different time offset than those of other base stations.

Regarding claims 2 and 16, as recited in claim 1, the inserted time would determine the number of passes for each correlator. Since the first search is performed in a short integration time than the second search, it would have been obvious that the number of non-coherent passes is reduced in comparison with the second search as claimed in the pending patent application.

Regarding claims 3 and 17, as recited in claim 1 and claim 2 above, the first search is performed in a short integration time than the second search, corresponding to the claimed feature.

4. Claims 5-10, 13-14 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe U.S. Patent 6,044,104 as applied to claim 1 above, and further in view of Byun U.S. Patent 6,445,728 B1.

Regarding claim 5, as recited in claim 1, referring to figure 1 in Watanabe invention, the 1st to Nth search correlators 3 constitute the claimed search engine, wherein the 1st to Nth search correlators 3 are configured to receive search parameters, to conduct a search signals within divided windows, and to output the correlative values. The search control section 8 constitutes the claimed controller, wherein the search control section 8 is configured to pass search parameters to the 1st to Nth search correlators 3. The claimed set of the coarse search parameters as set forth in the claim is already addressed in claim 1. Watanabe method further discloses that after the first search result, search control section 8 rearranges the correlative values in the order of electric power and selects multiple phases starting with the one with the maximum power and passes the selected phases to the 1st to Nth search correlators 3. According to further teachings, when there is no need to carry out a high-speed cell search, it can stop more than one correlator and insert a time for the correlators to stop during the cell search cycle. The high-speed cell search corresponds to the initial search at a short integration time. In light of the foregoing, it would have been obvious for one of ordinary skill in the art that after the initial search, only correlators, corresponding to certain window widths having most likely to contain a pilot signal, are operated during a search cycle in the second search.

Watanabe does not expressly disclose a memory as set forth in the claim. The mobile station employing a memory as set forth in the claim is cited in another US patent in the last office action. Byun discloses a method of

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establishing search window size for a mobile station in a cellular system, the method including performing a coarse search by finding a correlation energy value at each searcher position within a predetermined first search window, and estimating the size of a second search window to be applied to the mobile station based on said search result. In figure 2, the mobile station includes a memory 190 for receiving and storing the search results. The search results are passed to control logic 146, corresponding to the controller, through a CPU. The mobile station as taught by Byun has similar structures as the mobile station apparatus taught by Watanabe. As well known in the art of wireless communications, memory is implemented for storing and retrieving data in any mobile station apparatus, therefore, it would have been obvious for one of ordinary skill in the art that the mobile station apparatus taught by Watanabe could be modified to include a memory as disclosed in Byun invention.

Regarding claim 6, said claim is rejected on the same ground as claim 2.

Regarding claim 7, said claim is rejected on the same ground as claim 3.

Regarding claim 8, said claim has similar scope and is rejected on the same ground as claim 5.

Regarding claim 9, said claim is rejected on the same ground as claim 2.

Regarding claim 10, said claim is rejected on the same ground as claim 3.

Regarding claim 13, said claim has similar scope and is rejected on the same ground as claim 8.

Regarding claim 14, said claim has similar scope and is rejected on the same ground as claim 3. Furthermore, Watanabe does not disclose dividing a PN space into equal segments as claimed. However, as appreciated by one of ordinary skill in the art that dividing a PN space into equal segments is a matter of design choice. As recited in claim 1, because the integration time and cell search cycle would affect a number of non-coherent passes, varying the integration time or cell search cycle would change the number of non-coherent passes. According to Watanabe invention, the number of non-coherent passes is at least one in figure 3(a). Watanabe does not expressly disclose the integration interval to be in the range as set forth in the claim. Nevertheless, Watanabe discloses using a short integrating time to shorten the search time in the first search. In light of the foregoing, it would have been obvious for one of ordinary skill in the art the integration interval in the claimed range is just a matter of design choice.

Regarding claim 19, said claim has similar scope and is rejected on the same ground as claim 14. Watanabe does not disclose dividing the search window into unequal segments as claimed in the pending patent application. However, it would have

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been obvious for one of ordinary skill in the art that selecting unequal segments are a matter of design choice.

Regarding claims 20-21, Watanabe does not disclose dividing the search window into N equal or unequal segments as claimed in the pending patent application.

However, it would have been obvious for one of ordinary skill in the art that selecting N equal or unequal segments are a matter of design choice.

Allowable Subject Matter

5. Claims 4, 11-12, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sutton U.S. Patent 5,805,648 discloses "Method and Apparatus for Performing Search Acquisition in a CDMA Communication System".

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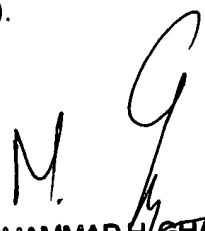
McDonough et al. U.S. Patent 6,519,237 B1 discloses "Apparatus and Method for Parallel Searching and Correlating for CDMA System".

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER